



NTSB National Transportation Safety Board

Office of Aviation Safety

**US Airways
Flight 1549
Ditching on
the Hudson River
January 15, 2009**



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Ditching Outcome

- Very few serious injuries and no fatalities
- Successful outcome mostly resulted from series of fortuitous circumstances
 - Good visibility, calm water
 - Very experienced flight crew
 - Extended overwater (EOW)-equipped
 - Vessels immediately available for rescue

Serious Injuries

- Flight attendant (F/A) sustained deep laceration to left shin
 - Vertical beam penetrated floor during impact
- Two passengers sustained very similar shoulder fractures during impact
 - Likely caused by brace position

Extended Overwater Equipment

- EOW-equipped but not required for flight
- EOW airplanes must have life vests and slide/rafts or life rafts
- After ditching, only 2 slide/rafts available with 110 occupant capacity
- Water entry will most likely prevent aft exits and slide/rafts from being available in future ditchings

Immersion Protection



Life Lines

- Intended for use on wings to prevent passengers from falling into water
- Equipped with 4 life lines near overwing exits; none deployed
- F/As trained on use but located at front and rear of airplane
- No information provided to passengers on safety information card or during briefings

Life Vests and Flotation Seat Cushions

- Accident airplane equipped with life vests and flotation seat cushions
- 1988 FAA NPRM proposed requiring life vests and flotation seat cushions on all flights, regardless of route
- NPRM was withdrawn in 2003 due to cost concerns

Life Vest Demonstrations

- F/As required to brief passengers on both life vests and flotation seat cushions
- Life vest *demonstration* not required because flight was not EOW
- 1985 NTSB recommendation to require predeparture briefings to include demonstration
 - FAA proposed recommended action in 1988 NPRM
 - NPRM withdrawn in 2003 with no action

Life Vest Stowage and Retrieval

- No pre-impact commands to don life vests
- Immediate concern for most passengers after impact was to evacuate quickly
- 19 passengers attempted to retrieve a life vest; 10 reported difficulties
 - Only 3/10 persistent enough to retrieve life vest
- 2003 CAMI testing indicated retrieval time averaged about 7 to 8 seconds

Life Vest Donning

- 33 passengers reported having a life vest; only 4 confirmed donning completion
 - Most struggled with waist strap or chose not to secure it
- 1983 CAMI donning test results
 - Only 4/100 successfully donned within 15 seconds
 - 21/100 did not don correctly within 2 minutes
- “Angler’s vest” results
 - 29/50 donned correctly within 15 seconds
 - Staff unaware of further development activity

Passenger Education

- 2000 NTSB safety study
 - Majority of passengers watched less than 75% of briefing
 - 68% did not read safety information card
- Accident flight
 - 70% of passengers did not watch briefing
 - More than 90% did not read safety information card
- 2000 NTSB recommendation
 - Closed – Unacceptable Action



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